

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (currently amended) A system to optimize resource planning for asynchronous digital subscriber line (DSL) (~~ADSL~~) services comprising:

a network management system (NMS) in communication with a DSL ~~an ADSL~~ network; and

a computing application, said computing application operating on said network management system capable of allocating, tracking, and managing deterministic resource configuration variables ~~that are~~ used to create virtual connections ~~permanent virtual circuits (PVCs)~~ on said DSL ~~ADSL~~ network.

2. (currently amended) The system recited in claim 1, wherein said virtual connection is a virtual circuit and said deterministic resource configuration variables comprise a ~~the~~ virtual circuit identifier (VCI) configuration variable.

3. (currently amended) The system recited in claim 2, wherein said VCI configuration variable is calculated by said computing application using at least one algorithm, said at least one algorithm employing configuration values of DSL network components ~~ADSL network values~~ to calculate said VCI configuration variable.

4. (currently amended) The system recited in claim 3, wherein the configuration values of the DSL network components ~~said ADSL network values~~ comprise any of the following: a port position of cooperating remote access multiplexers (RAM) of said DSL ~~ADSL~~ network, a ~~the~~ port position of central office digital subscriber line access multiplexer (CO DSLAM) of said DSL ~~ADSL~~ network, a ~~the~~ connection position of said cooperating RAMS on said DSL ~~network ADSL~~, and a DSL ~~an ADSL~~ network capacity parameter.

5. (currently amended) The system recited in claim 4, wherein said DSL ~~ADSL~~ network capacity parameter is determined from a ~~the~~ range of allowable VCI values ~~that can be~~ allocated on the DSL ~~ADSL~~ network at any one given time.

6. (currently amended) The system recited in claim 5, wherein said DSL ~~ADSL~~ network capacity parameter is determined using VCI values in a range from 33 to 1023.

7. (currently amended) The system recited in claim 1, wherein said NMS cooperates with said DSL ADSL-network using an element management system (EMS), said EMS capable of communicating with the DSL ADSL-network components using DSL ADSL network component communication protocols and standards.

8. (currently amended) The system recited in claim 7, wherein said NMS accepts subscriber information from a service order management system (SOMS) for use in allocating, tracking, and managing said deterministic resource configuration variables for use when creating the virtual connections ~~permanent virtual circuits (PVCs)~~ on said DSL ADSL network.

9. (currently amended) The system recited in claim 7, wherein said NMS uses said deterministic configuration variables to reanimate hung virtual connections. ~~permanent virtual connections (PVCs)~~.

10. (currently amended) The system recited in claim 9, wherein said NMS cooperates with said EMS to communicate information indicative of said hung virtual connections ~~PVCs~~ to said DSL ADSL-network components such that said DSL ADSL-network components can reanimate said hung virtual connections. ~~PVCs~~; said NMS calculating said deterministic variables using said computing application to ascertain the connection positions of the virtual connections ~~PVC~~ on said DSL ADSL-network components.

11. (currently amended) A method to optimize resources of an DSL ADSL-network providing DSL ADSL-services comprising the acts of:

(a) ~~providing a network management system (NMS) with the ability to calculating~~, tracking, and storing ~~deterministic~~ configuration variables used in a deterministic the provisioning of virtual connections ~~resources on the DSL an ADSL network~~; and

(b) ~~providing a communication means to allow said NMS to communicate~~ communicating the configuration variables to ~~with said DSL ADSL network to create said~~ virtual connections.

12. (currently amended) The method recited in claim 11, further comprising the act of ~~wherein act (a) further comprises the act of~~:

~~providing a computing application to operate on said network management system (NMS), said computing application~~ creating, managing, and communicating deterministic configuration variables to cooperating DSL ADSL network components for the provisioning of resources.

13. (currently amended) The method recited in claim 12, further comprising wherein the act of providing said computing application further comprises the act of calculating a virtual circuit identifier (VCI) value, said VCI value being calculated using a plurality of DSL ADSL component configuration data comprising any of connection position information, port information, and sequence position information.

14. (currently amended) The method recited in claim 13, wherein the act of calculating said virtual circuit identifier (VCI) value further comprises the act of reverse engineering resource allocations using said VCI value to ascertain the configuration values of said DSL ADSL network components.

15. (currently amended) The method recited in claim 11, wherein communicating the configuration variables to said DSL network includes the act of providing said communications means further comprises the act of coupling said a network management system NMS to an element management system (EMS), said NMS cooperating with said EMS to communicate said ~~created deterministic~~ configuration variables to said cooperating DSL ADSL components.

16. (original) A computer readable storage medium comprising computer-executable instructions for instructing a computer to perform the acts recited in claim 11.

17. (currently amended) In a DSL an ADSL network comprising a network management system (NMS), an element management system (EMS), at least one remote access multiplexer (RAM), and at least one central office digital subscriber line access multiplexer (CO DSLAM), a method to provision resources on said DSL ADSL network comprising the steps of:

calculating deterministic configuration variables by said NMS; and  
communicating said calculated deterministic configuration variables to said DSL  
~~ADSL~~-network by said NMS using said EMS, said EMS being communicatively coupled to  
said RAM and CODSLAM.

18. (currently amended) The method recited in claim 17, wherein said calculating step further comprises the step of determining CO DSLAM configuration values for inclusion in calculating ~~providing~~ said deterministic configuration variables.

19. (original) The method recited in claim 18, wherein said determining step further comprises the steps of communicating with said CO DSLAM by said NMS through said EMS to obtain said CODSLAM configuration values.

20. (currently amended) The method recited in claim 17, wherein said calculating step further comprises the steps of determining a ~~the~~ capacity of said RAM and said CO DSLAM to ascertain a ~~the~~ range of values for said deterministic configuration variables ~~values for communication by said NMS~~, and choosing a formula associated with said determined capacity for use in calculating said deterministic configuration variables. ~~values.~~

21. (original) A computer readable storage medium comprising computer-executable instructions for instructing a computer to perform the acts recited in claim 17.

22. (currently amended) In a DSL ~~an ADSL~~-network having a digital subscriber line access multiplexer (DSLAM), a plurality of remote access multiplexers (RAMs) communicatively connected to said DSLAM, and a plurality of subscribers communicatively connected to said DSLAM by way of said plurality of RAMs, wherein each subscriber is identifiable at said DSLAM by a combination of a virtual circuit identifier (VCI) value and a virtual path identifier (VPI) value, a method of assigning VCI values to a subscriber comprising the acts of:

identifying a RAM to which said subscriber is connected;

assigning a sequence number, n, to said RAM, said sequence number being based on a ~~the~~ DSLAM input port position to which said RAM is connected;

identifying a port on said RAM to which said subscriber is connected;  
assigning a position number, Mpos, to said RAM, said position number being in a range beginning with the number zero, said position number being based on the RAM input port to which said subscriber is connected;  
determining the number of ports, P, on said RAM;  
computing the value  $\text{of } P \cdot (n-1) + \text{Mpos}$ ; and  
assigning a VCI value for said subscriber based on the computed value.

23-27. canceled

28. (new) The system of claim 2, wherein the deterministic resource configuration variables further include a virtual path identifier (VPI) value, and the VPI and VCI values provide a unique identifier for a virtual connection between a subscriber and an associated Internet or Network Service Provider.

29. (new) The system of claim 1, wherein the DSL network is an ADSL network.

30. (new) The system of claim 1, wherein the virtual connection is a virtual circuit.

31. (new) The system of claim 30, wherein the virtual circuit is a permanent virtual connection (PVC).

32. (new) The method of claim 11, wherein the DSL network is an ADSL network.

33. (new) The method of claim 11, wherein the virtual connection is a virtual circuit.

34. (new) The method of claim 33, wherein the virtual circuit is a permanent virtual connection (PVC).

35. (new) The method of claim 13, further comprising assigning a virtual path identifier (VPI) value, wherein the VPI value and the VCI values provide a unique identifier for a virtual connection between a subscriber and an associated Internet or Network Service Provider.